

FAX



South Superfund
Remedial Branch
345 Courtland Street N.E.
Atlanta, Georgia 30365
(404) 347-2643

FAX: (404) 347-3058

T R A N S M I T A L

To: Hugo Fleischman

Address: EPA HQ

Tel. No: (703) 603-8769 Fax No. (703) 603-9100

From: Jane Spann

Date: 3/4/93 Pages: (including Cover Sheet) 2

Special Instructions: Attached is the
Division Director approval of the
Five-Year Review for Manbray.

~~The~~ The final document you
received has not changed. If you
need anything else, let me know.
If the following message is received poorly or
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Notify: _____ at Office No: _____

THANKS AND HAVE A NICE DAY



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

MEMORANDUM

DATE: FEB 23 1993

SUBJECT: Mowbray Engineering Company Site
Five-Year Review Final Report
Revision 1

FROM: Jane Stone Spann, RPM *Jane Stone Spann*
South Superfund Remedial Branch

TO: Hugo Fleischman
Environmental Protection Agency (EPA)
Office of Emergency and Remedial Response
Hazardous Site Control Division (OS-22OW)

Attached please find a copy of the above referenced document. Weston has incorporated your February 1, 1993 comments into this document. Please review this document to determine if your comments have been adequately addressed and provide any comments to me by March 1, 1993. We will proceed with the process of seeking Division Director approval of this document, so if you have any additional concerns please be sure to contact me prior to March 1, 1993.

If you have any questions regarding this matter please call me at (404) 347-2643.

Attachment

cc: Ken Skahn, EPA HQ



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

MEMORANDUM

DATE: MAR 04 1993

SUBJECT: Mowbray Engineering Company
Superfund Site
Greenville, Alabama

TO: Joseph R. Franzmathes, Director
Waste Management Division

FROM: Douglas F. Mundrick, Chief
South Superfund Remedial Branch

THRU: Richard D. Green, Associate Director
Office of Superfund and Emergency Response

Attached please find a copy of the Five-Year Review Final Report for the Mowbray Site in Greenville, Alabama. Section 121(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, requires that if a remedial action is taken that results in any hazardous substances, pollutants, or contaminants remaining at a site, the Environmental Protection Agency (EPA) shall review such remedial action no less often than each five years after initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

The Record of Decision (ROD) for this site was signed on September 25, 1986. EPA performed the remedial actions which consisted mainly of solidification/stabilization of the PCB contaminated soils. These actions began June 4, 1987 and were completed on August 20, 1987. Because this was a pre-SARA remedy, a policy Five-Year Review was appropriate for this site in accordance with the May 23, 1991 Office of Solid Waste and Emergency Response (OSWER) directive 9355.7-02.

The attached Five-Year Review Final Report, dated February 1993, has gone through EPA Region IV and Headquarters peer review. The attached report documents the current conditions at the site, states that the site continues to be protective of human health and the environment and makes recommendations regarding Operation and Maintenance activities and future site reviews. Upon approval of this document, by the Region IV Waste Division Director, EPA will initiate deletion of this site from the NPL. EPA will ensure that the site remains protective by conducting Five-Year Reviews in the future. The next review should be completed by June 4, 1997.

Approved by:

Joseph R. Franzmathes
Joseph R. Franzmathes, Director
Waste Management Division
EPA, Region IV

Date:

3/4/93

Document Control No. 4400-21-ACRY

Revision 1

**FIVE-YEAR REVIEW
FINAL REPORT**

**MOWBRAY ENGINEERING COMPANY SITE
GREENVILLE, BUTLER COUNTY, ALABAMA**

Work Assignment No. 21-4S02

February 1993

REGION IV

U.S. EPA CONTRACT NO. 68-W9-0057

**Roy F. Weston, Inc.
1880-H Beaver Ridge Circle
Norcross, Georgia 30071**

WESTON W.O. No. 04400-021-092-0008-00

**FIVE-YEAR REVIEW
FINAL REPORT**

REVISION 1

**MOWBRAY ENGINEERING COMPANY SITE
GREENVILLE, BUTLER COUNTY, ALABAMA**

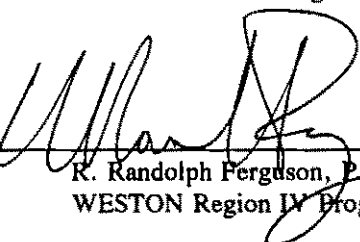
U.S. EPA Contract No. 68-W9-0057

Work Assignment No. 21-4S02

Document Control No. 4400-21-ACRY

February 1993

Prepared by:  Date: 2/17/93
R. P. McKeen, P.E.
WESTON Work Assignment Manager

Approved by:  Date: 2/17/93
R. Randolph Ferguson, P.E.
WESTON Region IV Program Manager

Approved by: _____ Date: _____
Jane Stone Spann
U.S. EPA Remedial Project Manager

Approved by: _____ Date: _____
Annie Godfrey
U.S. EPA Regional Project Officer

Prepared by:

*Roy F. Weston, Inc.
1880-H Beaver Ridge Circle
Norcross, Georgia 30071*

WESTON W.O. No. 04400-021-092-0008-00

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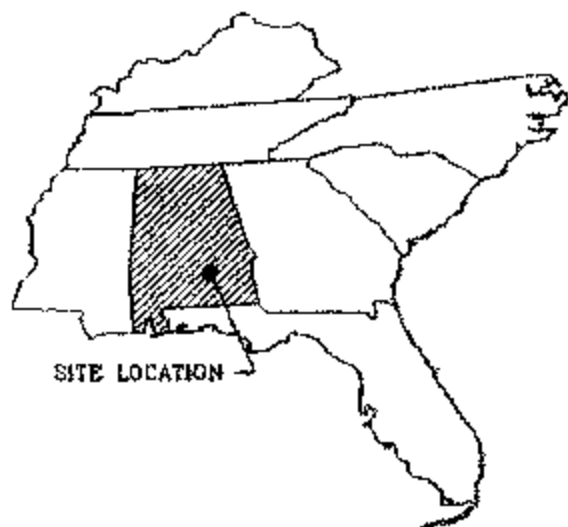
- A PHOTOGRAPHS**
- B ANALYTICAL RESULTS**
- C OPERATION AND MAINTENANCE PLAN**

This document was prepared by Roy F. Weston, Inc., expressly for EPA. It shall not be released or disclosed, in whole or in part, without the express written permission of EPA.

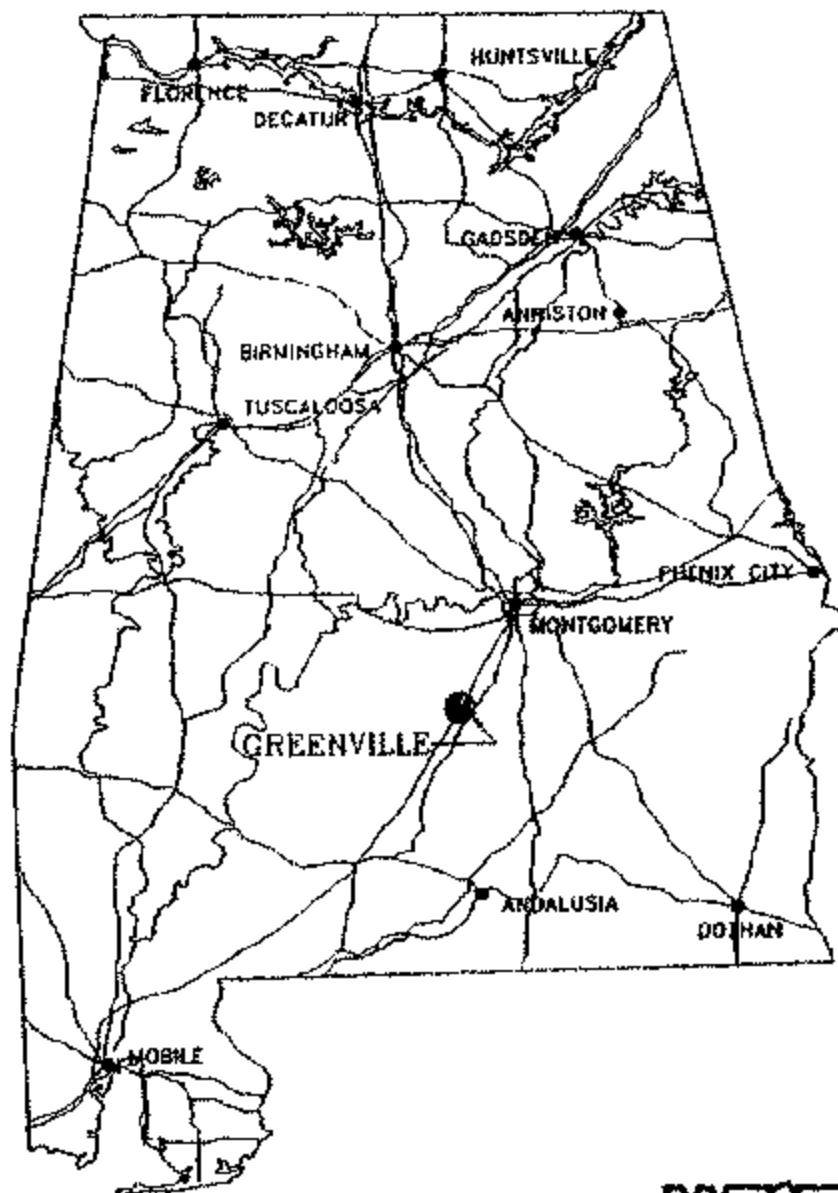
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SITE LOCATION



SITE LOCATION MAP
MOWBRAY ENGINEERING COMPANY
GREENVILLE, BUTLER COUNTY, ALABAMA

WESTON
A WESTON COMPANY

SECTION 1

BACKGROUND

1.1 INTRODUCTION

Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, requires that "{I}f the President {EPA by delegation} selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at a site, the President shall review such remedial action no less often than each five years after initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented." Section 300.430(f) (4) (ii) of the National Contingency Plan (NCP) makes it clear that five-year reviews will be conducted when "hazardous substances, pollutants or contaminants {are} remaining at the site above levels that allow unlimited use and unrestricted exposure". The requirement of section 121(c) applies to remedial actions selected after the date of enactment of the Superfund Amendments and Reauthorization Act (SARA) or October 16, 1986.

On May 23, 1991, the Director for the Office of Solid Waste and Emergency Response (OSWER), issued Directive 9355.7-02 that states that EPA will, as a matter of policy, conduct five-year reviews of pre-SARA remedies which will result in hazardous substances remaining at the site above levels that allow unlimited use and unrestricted exposure. The Record of Decision (ROD) for the Mowbray Engineering Site (MEC) was signed on September 25, 1986, which is a pre-SARA remedy. The EPA decided that a policy review was appropriate for the MEC Site to include groundwater and soil sampling in accordance with the OSWER Directive. This report contains results of the sampling effort and information collected by Roy F. Weston, Inc. (WESTON®), on behalf of EPA Region IV, during the review and evaluation of the MEC Site.

1.2 SITE LOCATION AND DESCRIPTION

The MEC Site is located approximately 40 miles southwest of Montgomery in the town of Greenville, Alabama (See Figure 1). The site encompasses a 2.7 acre tract situated diagonally across from the now bankrupt MEC facility at 300 Beeland Street.

The MEC facility repaired and reconditioned electrical transformers. From 1955 to 1974, MEC emptied waste Polychlorinated Biphenyl (PCB) transformer oil behind the facility. The oil entered a storm drain which discharged into a swamp across the road. In 1974, MEC began

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collecting the waste oil for recycling. In 1985, the company and its owner, Norman Parker, filed bankruptcy petitions under Chapter 7 of the U.S. Bankruptcy Code.

The 2.7-acre swamp area now contains a solidified/stabilized monolith which is surrounded by a six-foot chain link fence on three sides. The swamp is in the 100-year floodplain of the Tanyard Branch, that borders the west side of the swamp area.

1.3 HISTORY

The Alabama Water Improvement Commission and U.S. EPA conducted the first investigations at the MEC Site as a result of a major fish kill in the Tanyard Branch. This investigation, conducted in May 1975, revealed only trace amounts of PCBs in the soils surrounding the swamp area. As a result, MEC installed underground storage tanks to collect the waste oil for recycling.

A second fish kill was observed in 1980. The State of Alabama sampled the soils in the swamp area and found PCB levels as high as 500 mg/kg. Subsequently, the U.S. EPA performed an extensive sampling investigation in February 1981 to determine the extent of PCB contamination in the soils. Following this investigation, the EPA performed a removal action which consisted of removing the top six inches of soil from the swamp and transporting these soils to a permitted disposal facility. This action was completed in August 1981. Confirmation sampling of the area following the removal revealed a maximum PCB concentration of 19 mg/kg, which was below the established cleanup level of 50 mg/kg.

In 1982, the MEC Site was added to the National Priorities List with a Hazard Ranking System (HRS) score of 53.67. The HRS package listed groundwater as the main concern at the site mainly due to a nearby inactive public water supply well.

The Alabama Department of Environmental Regulation (ADEM) performed another investigation in November 1983 during a routine inspection. One of the grab samples collected in the swamp area during this visit revealed a PCB concentration of 1,737 mg/kg. In April 1984, the EPA Field Investigation Team (FIT) performed a sampling investigation which revealed that the soils in the swamp area were contaminated with PCBs at levels similar to those observed prior to the 1981 removal action.

In 1985, the EPA received approval to conduct a Remedial Investigation/Feasibility Study (RI/FS) at the MEC Site. The RI/FS was performed by Camp, Dresser & McKee and was completed in July 1986. The results of the RI/FS concluded that PCBs were the only contaminant of concern, although low levels of phenol, chloroform, dichloroethane, and

trichloroethanes were detected. PCBs were detected in groundwater monitoring well MW-2 at 2.4 ug/l during the 1986 remedial investigation. This low level PCB was detected in an unfiltered sample and it was determined that it may not reflect dissolved concentrations.

The EPA Regional Administrator signed the ROD, which described the selected remedial alternative, on September 25, 1986. Since no PRP was willing to undertake the necessary response actions in the ROD, the EPA performed the remedial actions which consisted mainly of solidification/stabilization of the PCB contaminated soils. These actions were completed on August 20, 1987. Further details of the remedial actions are described in the following section of this report.

1.4 REMEDIAL OBJECTIVES/ACTIONS

The ROD, signed on September 25, 1986, determined that a cleanup was needed and that the selected remedy (listed below) would adequately protect public health, welfare, and the environment. The selected alternative consisted of:

- * Excavation, removal, and disposal of the underground storage tanks located on the MEC property.
- * Treatment or disposal of waste oils encountered in the swamp area and in the underground storage tanks by a TSCA-approved method.
- * Drainage diversion of surface run-on around the contaminated swamp area.
- * Excavation of soils contaminated above 25 ppm PCBs and either off-site incineration, on-site incineration, or on-site stabilization/solidification of these soils. Incineration with an infrared-type incinerator was the preferred option.
- * Grading and revegetation of the contaminated swamp area.
- * Proper closure of the abandoned on site city supply well (in accordance with ADEM well closure regulations).
- * Operation and Maintenance (O&M) activities were to include maintenance of the drainage diversion ditch, the revegetated area and, possibly, monitoring and maintenance of the solidified matrix.

Remedial Construction Activities

EPA contractor, HazTech Corporation, began remedial action site work on June 4, 1987. The remediation of the site consisted of the following:

- * Solidification/Stabilization of PCB contaminated soil (monolith)
- * Capping of the resulting monolith
- * Construction of a diversion ditch around the swamp
- * Fencing off the swamp area
- * Grading and revegetating the swamp area
- * Closure of the abandoned city supply well
- * Excavation, removal, and disposal of the underground storage tanks located on the MEC property
- * Removal of abandoned transformers
- * Disposal/Treatment of waste oil in the underground storage tanks, barrels, transformers, and tanker trailer.

Solidification/stabilization was chosen instead of incineration as the method to treat the PCB contaminated soil due to cost effectiveness. The EPA's Emergency Response Control Section (ERCS) determined that the small amount of soils needing remediation (approximately 2,500 cubic yards) and the low concentration (maximum 62 ppm PCBs) would have been inefficient and not cost effective to incinerate.

The waste oil contained in the underground storage tanks was shipped to Chemical Waste Management's Landfill in Emelle, Alabama for incineration. The oil found in the transformers, barrels, and tanker trailer was shipped to PPM Recyclers in Atlanta, Georgia for destruction of PCBs. Small quantities of waste oils were found in the swamp but did not warrant off-site disposal.

Construction of a cap over the solidified material started on August 10, 1987, after a two week delay searching for suitable clay to meet the requirements of the Resource Conservation and Recovery Act (RCRA). The cap consisted of a minimum of two feet of compacted clay, a drainage layer of two feet of compacted fine-medium sand, a water permeable geotextile fabric, and two feet of topsoil. Grass was established on top of the cap to prevent degradation by erosion.

The abandoned city well was plugged by removing the well casing and pump then filling the well shaft with grout. The amount of grout pumped into the well equaled 5.5 yards. This volume was based on the original well construction records.

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The cleanup ended on August 20, 1987, at a cost of \$919,184.00. Confirmatory sampling of cleanup was conducted after each segment of the Remedial Action resulting in documentation that remaining PCB levels in soil were below the 25 ppm goal.

1.5 ARARs REVIEW

Section 121 (d) (2) (A) of CERCLA incorporates into the law the CERCLA Compliance Policy, which specifies that Superfund remedial actions must meet any Federal standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate requirements (ARARs). Also included is the provision that State ARARs must be met if they are more stringent than Federal requirements.

The ARARs identified in the EPA Record of Decision were reviewed and found not to contain changes in the standards promulgated subsequent to the remedial action. For this site, the following laws and standards considered include:

- Toxic Substance Control Act (TSCA)
- Resource Conservation and Recovery Act (RCRA)
- Clean Water Act (CWA)

A Maximum Contaminant Level (MCL) was developed subsequent to the remedial actions at the site. The 1980 EPA Water Quality Standards were used during the initial evaluation which did not list an MCL for PCB. The current National Primary Drinking Water standard for PCB is 0.5 ug/l (40 CFR part 141). Since this level was lower than the level detected in MW-2 (2.4 ug/l), the EPA decided that groundwater sampling would be performed as part of this review. As shown in 2.2 of this report, the results of groundwater sampling revealed no detectable quantities of PCB.

In addition, the State of Alabama has not issued any new applicable regulations since the remedial action was completed.

SECTION 2

SITE CONDITIONS

2.1 SUMMARY OF SITE RECONNAISSANCE

WESTON performed a site reconnaissance with EPA Remedial Project Manager (RPM), Jane Spann, on March 10, 1992. During that visit, the site was observed to be overgrown with weeds and small trees. It was apparent that no operating and maintenance (O&M) activities had been performed for some time. Photograph Nos. 1 and 2 in Appendix A illustrate the conditions of the site in March 1992. Trees were growing in the drainage ditches around the monolith and some small trees were observed on top of the monolith structure. The trees on the monolith present a potential problem in that the root systems provide a pathway for water to reach the monolith structure and thus initiate the erosion process. The chain-link fence and gate surrounding the site was in tact but heavily covered with kudzu.

A follow-up inspection was performed during the sampling event on September 11, 1992. Site conditions were improved from the first visit due to O&M activities conducted in July 1992 by the PRPs. The drainage ditches had been redressed and lined with rip-rap to prevent erosion. All trees had been removed from the monolith cap as well as the drainage ditches. See photograph Nos. 3 and 4 in Appendix A for site conditions after O&M activities and as they currently exist.

It is readily apparent from the photographs, that site conditions can degrade quickly and that O&M activities are necessary on a regular basis. With site conditions as they exist now, inspections can be made more readily as to the integrity of the monolith cap and security fencing. Both of the elements appear intact and performing as originally intended.

2.2 INTERVIEWS WITH KEY PERSONNEL

Interviews with appropriate individuals were conducted by telephone. Mr. Dan Cooper of ADEM (Montgomery, Alabama) provided comments with respect to ADEM's position during the remedial action. ADEM did not agree with the assessment of the site which listed it on the NPL. Mr. Cooper stated at the time, ADEM felt that this was not a critical situation and that many other sites warranted actions before this one. Mr. Cooper then commented on the Five-Year Review stating that ADEM did not feel that the situation was an endangerment to human health or the environment when the remedial action was performed; accordingly, he indicated that a statement with regard to continued protectiveness is not appropriate. Mr. Cooper did,

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however, state that ADEM has shown interest in the O&M activities to the extent that they sent a person to observe the PRP's O&M actions.

Mr. Mike Godfrey of Alabama Power Company was on-site during the March 10, 1992 visit and provided access and background information. Mr. Godfrey is acting as the PRPs' representative. Mr. Godfrey believes that the remedial action remains protective as originally intended. He stated that Alabama Power has agreed to perform general maintenance such as cutting the grass so that conditions remain as they are now. In addition, Mr. Godfrey stated that other O&M activities such as groundwater sampling will be conducted annually as identified in the Consent Decree.

The U.S. Fish & Wildlife Service (FWS) was contacted regarding a survey of Department of Interior Trust responsibilities. This survey conducted in 1986 concluded that no resources under the trusteeship of the U.S. Fish & Wildlife Service are known to occur in any area that could be affected by PCB discharge from the Mowbray Engineering Company Site.

Mr. Rick Dawson from the FWS in Atlanta, Georgia responded that the FWS had reviewed the 1986 survey and their position remains the same. The FWS believes that the remediation efforts have not affected any resources under the trusteeship which include any endangered plant or animal species.

City of Greenville officials were also contacted to provide local input regarding the Site. Initial contact was made with Mr. Otto Duke at the City Water Works Department. Mr. Duke was not formally involved with the project and deferred comment to the current mayor, Mr. Ernest Smith. Mr. Smith was not mayor at the time of the remedial action, but was a city council member. Mayor Smith did not have any concerns over the remediation activities or the current site conditions. He stated that the public has "forgotten about it" and the city officials see no cause for alarm over the current situation. The City Attorney, Richard Hartley, then joined the telephone conversation in a conference call. Mr. Hartley noted that the City of Greenville took title to the property where the monolith rests. The City of Greenville does maintain security by means of police drive-by. When asked about any plans for development, both parties responded that there are no plans for development either on or near the property. In closing, both parties reiterated that they see no problems with the Site as it remains today.

No other site contacts were made. Although the Site is located within the City of Greenville, it is not in a highly visible area. During both site visits by WESTON, only personnel at the Alabama Power Maintenance Facility noted our presence. A residential subdivision is located approximately 1/2 mile from the Site, but again, the proximity to the site does not appear to arouse any curiosity.

2.3 SUMMARY OF SITE SAMPLING TRIP

WESTON conducted surface soil and groundwater sampling at the site on September 11, 1992. Present were WESTON's Ralph McKeen and Chris Szluha, ADEM's Justine Martindale, and Alabama Power's, Franklin Horn. Mr. Horn was on site as the PRP representative to provide site access and collect split samples. A total of six samples was collected and analyzed for PCB by Industrial Environmental Analyst Laboratory in Cary, North Carolina under the EPA Contract Laboratory Program. A copy of the laboratory results is included as Appendix B. The following table summarizes the sampling data:

Sample No.	Location	Matrix	PCB Concentrations	
			EPA	Alabama Power
DCY 98	Monitoring Well No. 4	Groundwater	ND	<.001 mg/l
DCY 99	Monitoring Well No. 2	Groundwater	ND	<.001 mg/l
DDG 97	City Well #3	Groundwater	ND	<.001 mg/l
DDG 98	Drainage Ditch (S1)	Soil	0.17 mg/kg	<1.0 mg/kg
DDG 99	Center (S2)	Soil	0.43 mg/kg	<1.0 mg/kg
DCY 97	Ditch Outfall (S3)	Soil	1.20 mg/kg	2.0 mg/kg

* ND - Not Detected

Figure 2 illustrates the sample locations relative to the site and monolith. The city well is not shown on the map located. It is located adjacent to the city water storage tank. The results of these samples indicate that both EPA and Alabama Power's results are comparable; groundwater does not appear to be affected; and that soil PCB concentrations are well below the established cleanup level of 25 ppm.

**MOWBRAY ENGINEERING CO. SITE
GREENVILLE, BUTLER COUNTY, ALABAMA
SAMPLE LOCATION MAP
September 11, 1992**



Not to Scale

- Soil/Sediment Sample Location
- ⊗ Monitoring Well Sample Location

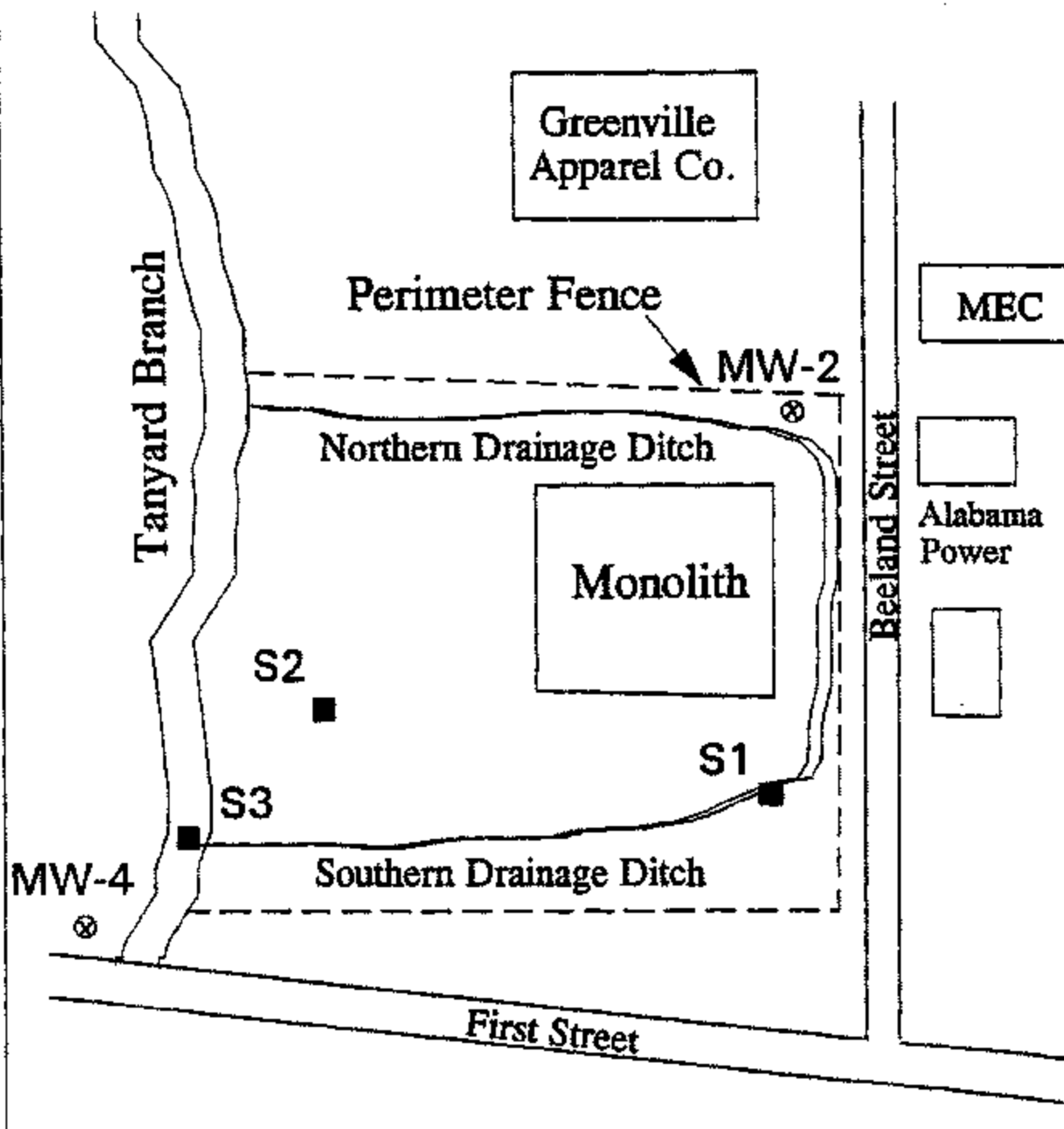


FIGURE 2

WETTER

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2.5 AREAS OF NON-COMPLIANCE

During the first site visit, the site conditions showed signs of non-compliance with respect to the maintenance. This was due to no formal understanding of who would perform these tasks. The cap was overgrown with trees growing on the cap as well as in the drainage structures. This was corrected during the maintenance activities performed in July 1992. During sampling activities performed by WESTON, it was observed that the areas were cleaned up and in compliance with the necessary maintenance required under the ROD and Consent Decree. It is WESTON's understanding that this type of O&M will continue by the PRPs, and it will include periodic groundwater sampling from the on-site monitoring wells.

SECTION 3

RECOMMENDATIONS

3.1 TECHNOLOGY RECOMMENDATIONS

During the five-year review process and associated inspections, WESTON observed the site in an unacceptable condition with trees and excess vegetation. O&M activities were not initially conducted correctly or timely as is specified in the O&M plan in the Consent Decree. A copy of this plan is included as Appendix C. It is recommended that the site be maintained in its current corrected condition so that visual surveys of the site can be performed to inspect the integrity of the fence and cap on the monolith.

3.2 REQUIREMENTS FOR RECOMMENDATION IMPLEMENTATION

To maintain the site in good condition, it must be mowed regularly to prevent high grass growth and to prevent trees from becoming established. Also, the fence should be clear from vine-like vegetation such as kudzu so that the fence can be readily inspected. The infestation of kudzu on the adjacent property will make maintenance of the site an ongoing task. As stated in the O&M Plan (Appendix C), herbicides should be applied as needed. Inspections performed during this review indicate that it should be performed at least annually. The O&M issue has been resolved and Alabama Power has committed to performing regular grass mowing activities as well as sampling as described in the Consent Decree.

3.3 STATEMENT OF PROTECTIVENESS

Based upon the site inspections and sampling results, the remedial actions appear to be performing well. The monolith cap, drainage ditches, and fence appear to be in sound condition with no signs of physical deterioration. The PCB contamination remains controlled within the solidified matrix and cover material.

3.4 NEXT REVIEW

During the next review, WESTON suggests a similar format and level of effort. The next review may consider a core sample of monolith to determine long-term leachability of the contaminants into the soil and groundwater beneath. This will be evaluated with respect to the current O&M sampling data. The next review should be completed by June 4, 1997. June 4, 1987 is considered as the initiation of the remediation action since there was not a contract

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award date. The contractor, HazTech Corporation, was the EPA removal contractor already established under the Emergency Response Cleanup Services contract.

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APPENDIX A

PHOTOGRAPHS



Photograph No. 1

Date: March 10, 1992

Location: Mowbray Engineering Site, Greenville, Alabama

Description: Overgrown vegetation and trees located in the drainage ditch on east side of monolith.



Photograph No. 2

Date: March 10, 1992

Location: Mowbray Engineering Site, Greenville, Alabama

Description: View looking west over the entire site. Monolith on the right side of photograph.



Photograph No. 3

Date: September 11, 1992

Location: Mowbray Engineering Site, Greenville, Alabama

Description: View looking west over the entire site. Note monolith mound on the right side of photograph.



Photograph No. 4

Date: September 11, 1992

Location: Mowbray Engineering Site, Greenville, Alabama

Description: View of southern drainage ditch leading to the Tanyard Branch. RipRap shown lining the banks of the ditch.

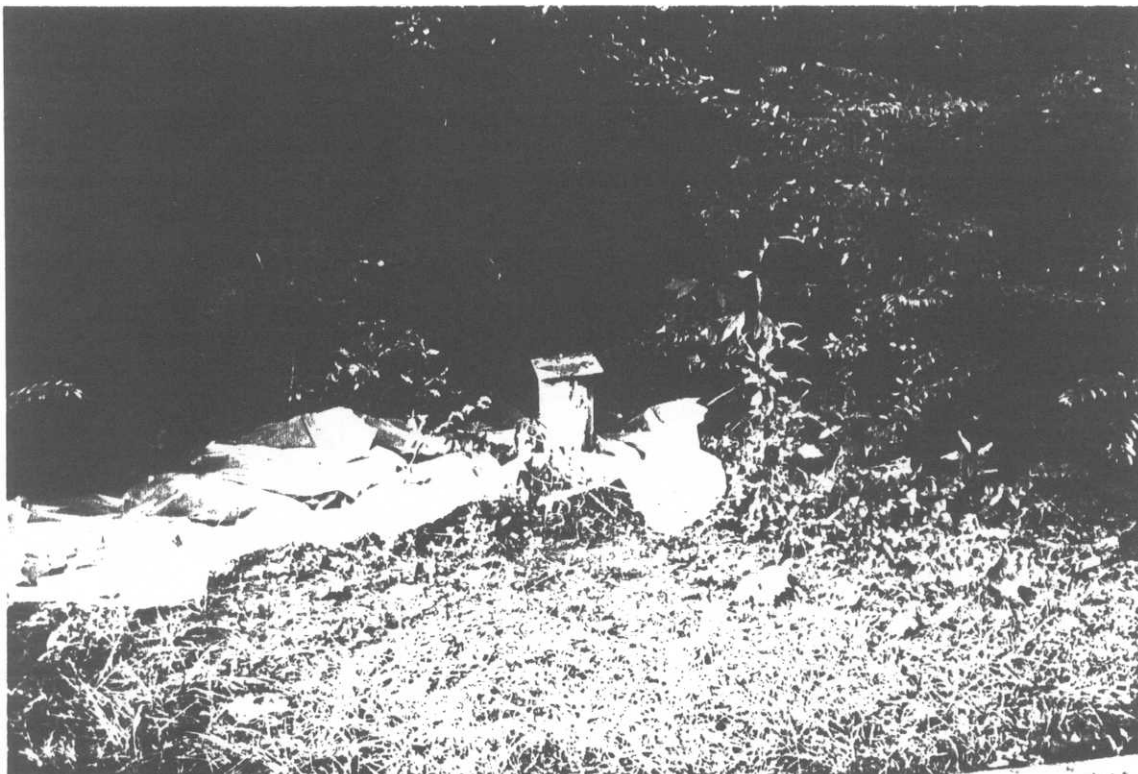


Photograph No. 5

Date: September 11, 1992

Location: Mowbray Engineering Site, Greenville, Alabama

Description: WESTON obtains water sample from MW No. 2 with Teflon bailer. Well is constructed with 4-inch stainless steel.



Photograph No. 6

Date: September 11, 1992

Location: Mowbray Engineering Site, Greenville, Alabama

Description: View of Monitoring Well No. 4 located adjacent to First Street.

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Section: Appendix B
Revision: 1
Date: February 1993

APPENDIX B

ANALYTICAL RESULTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV
Environmental Services Division
College Station Road, Athens, Ga. 30613

*****MEMORANDUM*****

DATE: 10/22/92

SUBJECT: Results of Pesticide/PCB Analysis;
92-0848 MOWBRAY ENGINEERING
GREENVILLE AL
CASE NO: 18714

FROM: Robert W. Knight
Chief. Laboratory Evaluation/Quality Assurance Section

TO: CONLEY PHIFER

Attached are the results of analysis of samples collected as part of the subject project.

As a result of the Quality Assurance Review, certain data qualifiers may have been placed on the data. Attached is a DATA QUALIFIER REPORT which explains the reasons that these qualifiers were required.

If you have any questions please contact me.

ATTACHMENT

ORGANIC DATA QUALIFIER REPORT

Case Number 18714 Project Number 92-0848 SAS Number

Site ID. Mowbray Engineering, Greenville, Al.

<u>Affected Samples</u>	<u>Compound or Fraction</u>	<u>Flag Used</u>	<u>Reason</u>
<u>Pesticides</u>			
none			

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT

10/21/92

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***
** PROJECT NO. 92-0848      SAMPLE NO. 71911      SAMPLE TYPE: GROUNDWA      PROG ELEM: SSF      COLLECTED BY: R MCKEEN      **
** SOURCE: MOWBRAY ENGINEERING      CITY: GREENVILLE      ST: AL      **
** STATION ID: WELL #3      COLLECTION START: 09/11/92      1130      STOP: 00/00/00      **
** CASE NUMBER: 18714      SAS NUMBER:      D. NUMBER: DG97      **
**
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UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
0.050U	ALPHA-BHC	0.50U	METHOXYCHLOR
0.050U	BETA-BHC	0.10U	ENDRIN KETONE
0.050U	DELTA-BHC	0.10U	ENDRIN ALDEHYDE
0.050U	GAMMA-BHC (LINDANE)	--	CHLORDANE (TECH. MIXTURE) /1
0.050U	HEPTACHLOR	0.050U	GAMMA-CHLORDANE /2
0.050U	ALDRIN	0.050U	ALPHA-CHLORDANE /2
0.050U	HEPTACHLOR EPOXIDE	5.0U	TOXAPHENE
0.050U	ENDOSULFAN I (ALPHA)	1.0U	PCB-1016 (AROCLOR 1016)
0.10U	DIELDRIN	2.0U	PCB-1221 (AROCLOR 1221)
0.10U	4,4'-DDE (P,P'-DDE)	1.0U	PCB-1232 (AROCLOR 1232)
0.10U	ENDRIN	1.0U	PCB-1242 (AROCLOR 1242)
0.10U	ENDOSULFAN II (BETA)	1.0U	PCB-1248 (AROCLOR 1248)
0.10U	4,4'-DDD (P,P'-DDD)	1.0U	PCB-1254 (AROCLOR 1254)
0.10U	ENDOSULFAN SULFATE	1.0U	PCB-1260 (AROCLOR 1260)
0.10U	4,4'-DDT (P,P'-DDT)		

*** FOOTNOTES ***

- *A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
 *K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN
 *U-MATERIAL WAS ANALYZED FOR BUT NOT DETECTED. THE NUMBER IS THE MINIMUM QUANTITATION LIMIT.
 *R-QC INDICATES THAT DATA UNUSABLE. COMPOUND MAY OR MAY NOT BE PRESENT. RESAMPLING AND REANALYSIS IS NECESSARY FOR VERIFICATION.
 *C-CONFIRMED BY GCMS 1. WHEN NO VALUE IS REPORTED, SEE CHLORDANE CONSTITUENTS.
 2. CONSTITUENTS OR METABOLITES OF TECHNICAL CHLORDANE.

SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT

10/21/92

** PROJECT NO. 92-0848 SAMPLE NO. 71916 SAMPLE TYPE: SOIL PROG ELEM: SSF COLLECTED BY: R MCKEEN **
** SOURCE: MOWBRAY ENGINEERING CITY: GREENVILLE ST: AL **
** STATION ID: S1 COLLECTION START: 09/11/92 1430 STOP: 00/00/00 **
** CASE NUMBER: 18714 SAS NUMBER: D. NUMBER: DG98 **
**

UG/KG	ANALYTICAL RESULTS	UG/KG	ANALYTICAL RESULTS
2.0U	ALPHA-BHC	20U	METHOXYCHLOR
2.0U	BETA-BHC	3.8U	ENDRIN KETONE
2.0U	DELTA-BHC	3.8U	ENDRIN ALDEHYDE
2.0U	GAMMA-BHC (LINDANE)	--	CHLORDANE (TECH. MIXTURE) /1
4.8	HEPTACHLOR	17	GAMMA-CHLORDANE /2
2.0U	ALDRIN	5.0	ALPHA-CHLORDANE /2
5.2	HEPTACHLOR EPOXIDE	200U	TOXAPHENE
2.0U	ENDOSULFAN I (ALPHA)	38U	PCB-1016 (AROCOR 1016)
3.8U	DIELDRIN	77U	PCB-1221 (AROCOR 1221)
3.8U	4,4'-DDE (P,P'-DDE)	38U	PCB-1232 (AROCOR 1232)
3.8U	ENDRIN	38U	PCB-1242 (AROCOR 1242)
3.8U	ENDOSULFAN II (BETA)	38U	PCB-1248 (AROCOR 1248)
3.8U	4,4'-DDD (P,P'-DDD)	38U	PCB-1254 (AROCOR 1254)
3.8U	ENDOSULFAN SULFATE	170	PCB-1260 (AROCOR 1260)
3.8U	4,4'-DDT (P,P'-DDT)	14	PERCENT MOISTURE

*** FOOTNOTES ***

*A-AVERAGE VALUE *NA-NOT ANALYZED *NAI-INTERFERENCES *J-ESTIMATED VALUE *N-PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL

*K-ACTUAL VALUE IS KNOWN TO BE LESS THAN VALUE GIVEN *L-ACTUAL VALUE IS KNOWN TO BE GREATER THAN VALUE GIVEN

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT

10/21/92

** PROJECT NO. 92-0848 SAMPLE NO. 71917 SAMPLE TYPE: SOIL PROG ELEM: SSF COLLECTED BY: R MCKEEN **
** SOURCE: MOWBRAY ENGINEERING CITY: GREENVILLE ST: AL **
** STATION ID: S2 COLLECTION START: 09/11/92 1435 STOP: 00/00/00 **
** CASE NUMBER: 18714 SAS NUMBER: D. NUMBER: DG99 **
**

UG/KG	ANALYTICAL RESULTS	UG/KG	ANALYTICAL RESULTS
1.9U	ALPHA-BHC	19U	METHOXYCHLOR
1.9U	BETA-BHC	3.7U	ENDRIN KETONE
1.9U	DELTA-BHC	3.7U	ENDRIN ALDEHYDE
1.9U	GAMMA-BHC (LINDANE)	--	CHLORDANE (TECH. MIXTURE) /1
1.9U	HEPTACHLOR	1.9U	GAMMA-CHLORDANE /2
1.9U	ALDRIN	1.9U	ALPHA-CHLORDANE /2
1.9U	HEPTACHLOR EPOXIDE	190U	TOXAPHENE
1.9U	ENDOSULFAN I (ALPHA)	37U	PCB-1016 (AROCLOR 1016)
3.7U	DIELDRIN	76U	PCB-1221 (AROCLOR 1221)
3.7U	4,4'-DDE (P,P'-DDE)	37U	PCB-1232 (AROCLOR 1232)
3.7U	ENDRIN	37U	PCB-1242 (AROCLOR 1242)
3.7U	ENDOSULFAN II (BETA)	37U	PCB-1248 (AROCLOR 1248)
3.7U	4,4'-DDD (P,P'-DDD)	37U	PCB-1254 (AROCLOR 1254)
3.7U	ENDOSULFAN SULFATE	430	PCB-1260 (AROCLOR 1260)
3.7U	4,4'-DDT (P,P'-DDT)	12	PERCENT MOISTURE

*** FOOTNOTES ***

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT

10/21/92

** PROJECT NO. 92-0848 SAMPLE NO. 71918 SAMPLE TYPE: SOIL PROG ELEM: SSF COLLECTED BY: R MCKEEN **
** SOURCE: MOWBRAY ENGINEERING CITY: GREENVILLE ST: AL **
** STATION ID: S3 COLLECTION START: 09/11/92 1445 STOP: 00/00/00 **
** CASE NUMBER: 18714 SAS NUMBER: D. NUMBER: CY97 **
**

UG/KG	ANALYTICAL RESULTS	UG/KG	ANALYTICAL RESULTS
3.0U	ALPHA-BHC	30U	METHOXYCHLOR
3.0U	BETA-BHC	5.7U	ENDRIN KETONE
3.0U	DELTA-BHC	5.7U	ENDRIN ALDEHYDE
3.0U	GAMMA-BHC (LINDANE)	--	CHLORDANE (TECH. MIXTURE) /1
3.0U	HEPTACHLOR	20U	GAMMA-CHLORDANE /2
3.0U	ALDRIN	9.0U	ALPHA-CHLORDANE /2
3.0U	HEPTACHLOR EPOXIDE	300U	TOXAPHENE
3.0U	ENDOSULFAN I (ALPHA)	57U	PCB-1016 (AROCOLOR 1016)
9.0U	DIELDRIN	120U	PCB-1221 (AROCOLOR 1221)
5.7U	4,4'-DDE (P,P'-DDE)	57U	PCB-1232 (AROCOLOR 1232)
5.7U	ENDRIN	57U	PCB-1242 (AROCOLOR 1242)
5.7U	ENDOSULFAN II (BETA)	57U	PCB-1248 (AROCOLOR 1248)
5.7U	4,4'-DDD (P,P'-DDD)	57U	PCB-1254 (AROCOLOR 1254)
5.7U	ENDOSULFAN SULFATE	1200C	PCB-1260 (AROCOLOR 1260)
5.7U	4,4'-DDT (P,P'-DDT)	43	PERCENT MOISTURE

*** FOOTNOTES ***

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT

10/21/92

** PROJECT NO. 92-0848 SAMPLE NO. 71919 SAMPLE TYPE: GROUNDWA PROG ELEM: SSF COLLECTED BY: R MCKEEN **
** SOURCE: MOWBRAY ENGINEERING CITY: GREENVILLE ST: AL **
** STATION ID: WELL #2 COLLECTION START: 09/11/92 1530 STOP: 00/00/00 **
** CASE NUMBER: 18714 SAS NUMBER: D. NUMBER: CY99 **
**

UG/L ANALYTICAL RESULTS

0.050U ALPHA-BHC
0.050U BETA-BHC
0.050U DELTA-BHC
0.050U GAMMA-BHC (LINDANE)
0.050U HEPTACHLOR
0.050U ALDRIN
0.050U HEPTACHLOR EPOXIDE
0.050U ENDOSULFAN I (ALPHA)
0.10U DIELDRIN
0.10U 4,4'-DDE (P,P'-DDE)
0.10U ENDRIN
0.10U ENDOSULFAN II (BETA)
0.10U 4,4'-DDD (P,P'-DDD)
0.10U ENDOSULFAN SULFATE
0.10U 4,4'-DDT (P,P'-DDT)

UG/L ANALYTICAL RESULTS

0.50U METHOXYCHLOR
0.10U ENDRIN KETONE
0.10U ENDRIN ALDEHYDE
-- CHLORDANE (TECH. MIXTURE) /1
0.050U GAMMA-CHLORDANE /2
0.050U ALPHA-CHLORDANE /2
5.0U TOXAPHENE
1.0U PCB-1016 (AROCOR 1016)
2.0U PCB-1221 (AROCOR 1221)
1.0U PCB-1232 (AROCOR 1232)
1.0U PCB-1242 (AROCOR 1242)
1.0U PCB-1248 (AROCOR 1248)
1.0U PCB-1254 (AROCOR 1254)
1.0U PCB-1260 (AROCOR 1260)

*** FOOTNOTES ***

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SAMPLE AND ANALYSIS MANAGEMENT SYSTEM
EPA-REGION IV ESD, ATHENS, GA.

PESTICIDES/PCB'S DATA REPORT

10/21/92

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***
** PROJECT NO. 92-0848      SAMPLE NO. 71920      SAMPLE TYPE: GROUNDWA      PROG ELEM: SSF      COLLECTED BY: R MCKEEN      **
** SOURCE: MOWBRAY ENGINEERING      CITY: GREENVILLE      ST: AL      **
** STATION ID: WELL #4      COLLECTION START: 09/11/92      1550      STOP: 00/00/00      **
** CASE NUMBER: 18714      SAS NUMBER:      D. NUMBER: CY98      **
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UG/L	ANALYTICAL RESULTS	UG/L	ANALYTICAL RESULTS
0.050U	ALPHA-BHC	0.50U	METHOXYCHLOR
0.050U	BETA-BHC	0.10U	ENDRIN KETONE
0.050U	DELTA-BHC	0.10U	ENDRIN ALDEHYDE
0.050U	GAMMA-BHC (LINDANE)	--	CHLORDANE (TECH. MIXTURE) /1
0.050U	HEPTACHLOR	0.050U	GAMMA-CHLORDANE /2
0.050U	ALDRIN	0.050U	ALPHA-CHLORDANE /2
0.050U	HEPTACHLOR EPOXIDE	5.0U	TOXAPHENE
0.050U	ENDOSULFAN I (ALPHA)	1.0U	PCB-1016 (AROCLOR 1016)
0.10U	DIELDRIN	2.0U	PCB-1221 (AROCLOR 1221)
0.10U	4,4'-DDE (P,P'-DDE)	1.0U	PCB-1232 (AROCLOR 1232)
0.10U	ENDRIN	1.0U	PCB-1242 (AROCLOR 1242)
0.10U	ENDOSULFAN II (BETA)	1.0U	PCB-1248 (AROCLOR 1248)
0.10U	4,4'-DDD (P,P'-DDD)	1.0U	PCB-1254 (AROCLOR 1254)
0.10U	ENDOSULFAN SULFATE	1.0U	PCB-1260 (AROCLOR 1260)
0.10U	4,4'-DDT (P,P'-DDT)		

*** FOOTNOTES ***

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2. CONSTITUENTS OR METABOLITES OF TECHNICAL CHLORDANE.

General Test Laboratory
Building Number 8
P.O. Box 2641
Birmingham, Al. 35291

Alabama Power 

Certificate of Analysis

TO : MR. MIKE GODFREY
ADDRESS: CORP HQT
14N-0038

REPORT DATE : 09/23/92

DESCRIPTION: EPA# DCY98 MW TOP OF WELL CASING WATER TABLE 13.7'

SAMPLE ID	SAMPLE DATE	DESCRIPTION	TYPE	PCB	UNITS
920914-0043	09/14/92	EPA# DCY98 MW TOP OF WELL CASING WATER TABLE 13.7'		(0.001	ng/l
920914-0044	09/14/92	EPA# 00097 CW 3 CITY WATER FROM WELL #3 UNDER WATER TANK		(0.001	ng/l
920914-0045	09/14/92	EPA# DCY99 MW 2 WATER TABLE 10.9'		(0.001	ng/l
920914-0046	09/14/92	EPA# 00098 S1 SOIL SAMPLE, SEDIMENT IN DITCH W/RIP-RAP		(1.	ng/kg
920914-0063	09/14/92	EPA# 00099 S2 SOIL SAMPLE, FROM MIDDLE OF FIELD		(1.	ng/kg
920914-0064	09/14/92	EPA# DCY97 S3 SOIL SAMPLE, SEDIMENT FROM DRAIN DITCH	1260	2.	ng/kg

CC: MR. W. S. HILL
MR. J. M. GODFREY

Chemist

Quality Control

APNE RYALS

Supv. Chemist

CHARLES HORN

Page

of

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Five-Year Final Report
Mowbray Engineering Co. Site
Section: Appendix C
Revision: 1
Date: February 1993

APPENDIX C

OPERATION AND MAINTENANCE PLAN

OPERATION AND MAINTENANCE PLAN FOR THE
MOWBRAY ENGINEERING COMPANY SUPERFUND SITE
IN GREENVILLE, ALABAMA

Appendix A to the Consent Decree in United States v.
Alabama Power Company, et al., Civil Action No. _____
in the United States District Court for Northern District
of Alabama, Southern Division

In order to satisfy the obligations of the Consent Decree referenced above, the non-de minimis settling defendants ("defendants") party to that decree will provide the operation and maintenance services set out in the following operation and maintenance plan (the "Plan") at the site for thirty (30) years. Alabama Power Company ("APCO") will perform certain of these services on behalf of the defendants in exchange for compensation. Specificity and detail in the description of services to be rendered is of the essence and services beyond those described herein will not be performed. The plan does not include any services beyond thirty (30) years after the initiation of services under the Plan and APCO's obligation to perform services under the Plan on behalf of the defendants ends at that time. The services described herein will be performed exclusively on the portion of the site located across Beeland Street from the Mowbray Engineering Company ("MEC") building and facilities and referred to hereinafter as the "O&M site". The Plan does not include services at the MEC building or

facilities. The City of Greenville, Alabama ("Greenville") will take and hold title to the O&M site and restrict access to the O&M site to the U.S. Environmental Protection Agency ("EPA") and those performing services called for under the Plan. Each defendant, including APCO and Greenville, shall have the right to enforce the obligations of this Plan under paragraphs 32 and 33 Of the Consent Decree.

The following activities will be performed by APCO on behalf of the defendants to assure that actions taken by the EPA and the defendants to stabilize and contain PCB soil contamination at the site remain in effect for a period of thirty (30) years. This program will commence following the effective date of the Consent Decree or the completion of any additional actions by the defendants, whichever is later.

1. SITE INSPECTION AND SAMPLING

Detailed site inspections will be performed quarterly and following major rainfall/flood events. Rainfall/flood events will be monitored by installation of a remote sensing rain gauge in the immediate vicinity of the O&M site. Site inspections will be conducted by qualified personnel who shall make a written inspection report describing the condition of the vegetative cover, general integrity of the remedy, including the soil cover and monolith, and condition

of the drainage system, riprap and fence. PCB analyses will be conducted on soil and water samples collected at the site during the thirty year maintenance period. All sampling and analyses for PCBs will be conducted using EPA-approved methods. Three soil and two water samples will be collected at the site semi-annually during the first three years, annually during the next three years and bi-annually for the remaining twenty-four years. Sample locations will be selected at the site based on run-off patterns relative to location of the monolith and documented on a site map. The rain gauge will be inspected monthly to insure proper operation and calibration. During the monthly rain gauge calibration check, a cursory site inspection will be conducted.

2. GENERAL SITE MAINTENANCE AND REPAIR

General maintenance at the site will include cutting the grass approximately six times per year (based on growth), reseeding grass as necessary to maintain a stable vegetative cover, and annual fertilizing. Weed and woody vegetation will be controlled, if necessary, by herbiciding.

Repair of the site shall be conducted as necessary to maintain site security and the integrity of the soil cover and drainage system and shall include any soil replacement, replacement of riprap along the drainage system, and fence

repair required under normal conditions of wear and tear, not to include repair required by reason of a single, discrete, unexpected event. Gradual deterioration of the remedy shall not constitute a discrete, unexpected event. For any repairs required by reason of any single, discrete, unexpected event during the first year after the effective date of this O&M plan, APCO will perform or pay for the first \$10,000 worth of such repairs as a part of its obligation under this Plan and without charge to the other defendants. In the second through thirtieth years after the effective date of this O&M plan, APCO will perform or pay for an amount of such repairs up to a cost equal to a sum calculated by applying an annual escalation rate of six and one-half percent (6.5%), compounded annually, to the initial \$10,000 responsibility. This escalated cost per single, discrete, unexpected event is hereafter referred to as the "APCO Event Cost". In the event APCO performs all or a part of such work, the value of work performed by APCO through its employees and with its equipment and materials shall be determined on a basis consistent with cost calculation practices then in use by APCO to charge for work performed to install electrical facilities on customer-owned property.

With respect to damage caused by weather, a single, discrete, unexpected event is the period of time, however long, between the initial development of weather conditions of sufficient severity as to damage the soil cover or the

monolith at the O&M site and the dissipation of those conditions to the extent that the threat of damage to the O&M site of the type sustained during the event is no longer present. With specific respect to events of precipitation, a single, discrete, unexpected event ends 48 hours after the end of precipitation at the O&M site.

Greenville will be financially responsible for the cost of all repair required by reason of any single, discrete, unexpected event in excess of the APCO Event Cost, not to exceed the APCO Event Cost plus \$10,000. The cost of any repair required by reason of any single, discrete, unexpected event in excess of the APCO Event Cost plus \$10,000 shall be the financial responsibility of all defendants, including APCO, which responsibility shall be borne in accordance with a separate agreement between the Non-De Minimis Settling Defendants. In the event any Non-De Minimis Settling Defendant or Defendants are not able and/or cannot be required to bear any financial responsibility related to this Plan by reason of bankruptcy, insolvency, dissolution, incapacity or any other reason, the other Non-De Minimis Settling Defendants agree to bear the responsibility of the incapable defendant or defendants in accordance with the separate agreement referenced above.

Whenever repair to the O&M site is required by reason of any single, discrete, unexpected event and costs are expected to exceed or do exceed the APCO Event Cost, APCO will notify the defendants, including Greenville, of the circumstances, the repairs believed to be required and the time frame within which APCO intends to perform the repairs or have them performed. Such repairs shall not include additional or further remedial activities undertaken for reasons other than routine maintenance or repair of damage caused by one or more single, discrete, unexpected events. At the request of any defendant, APCO will conduct reasonable discussions regarding the repairs required. In any event and notwithstanding any lack of concurrence with APCO's intentions or among those notified, APCO is authorized and directed by the defendants, including Greenville, to proceed with all repairs determined in APCO's sole discretion to be required to maintain security and the integrity of the remedial measures performed at the O&M site by EPA and the defendants, including repairs expected to cost in excess of the APCO Event Cost, as soon as necessary and practicable. In such event, APCO shall be entitled to recover all costs reasonably incurred in excess of the APCO Event Cost from the parties financially responsible for such costs. So long as APCO has fulfilled its responsibilities under this Plan, the other non-de minimis settling defendants, including Greenville, expressly waive any and all objections, claims or defenses to APCO's recovery of these

costs save only the reasonableness of the costs incurred for the actions taken. APCO shall likewise be entitled to recover the costs of any actions taken to recover such repair costs, including court costs, reasonable attorneys fees and interest at 12 percent per annum from the date 60 days after presentation of the cost recovery request by APCO.

3. MANAGEMENT AND ADMINISTRATION

The Plan includes reporting and record keeping to insure that EPA and the defendants, including Greenville, are provided with a record of the results of site inspections, maintenance and repair activities. The sampling and analysis program called for during site inspections, the operation and maintenance of the remote sensing rain gauge, and meteorological data logging and interpretation will be conducted under a quality assurance program to insure valid results. Documentation will be maintained relative to cost incurred for any remedial maintenance activities. Additionally, documentation will be maintained for weed control activities, including types and application method and rates for any use of herbicides.

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